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SUPERINTENDENT

NEW YORK STATE POLICE
PUBLIC SECURITY BUILDING
STATE CAMPUS
ALBANY, NEW YORK 12226

May 26, 1993

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
1919 M Street N.W., Room 222
Washington, D.C. 20554

RE: PR Docket No. 92-235

Dear Ms. Searcy:

Enclosed herewith are comments of the New York State Police regarding PR Docket No. 92-235.

We applaud the Commission on its move toward providing more communication channels within the radio spectrum. However, in the proposed Part 88 Rules we see some very significant impacts: fiscal, technical, and international coordination with Canada. We desire to bring these to your attention.

The New York State Police operate over a diverse range of geography including the high peaks of the Adirondack

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Replacement of Part 90	)	PR Docket No. 92-235
by Part 88 to Revise	)	
the Private Land Mobile	)	
Radio Services and Modify	)	
the Policies Governing Them	)	

To: The Commission

COMMENTS ON
PR Docket No. 92-235
by The New York State Police

1. I am Captain Patrick J. Leamy, Director of Communications for the New York State Police. My address is New York State Police, Division Headquarters, Public Security Building, State Office Campus - Building 22, Albany, New York 12226-0001. My telephone number is (518) 457-9466 and FAX number is (518) 457-3207.

2. The New York State Police (State Police) operate a statewide multi-channel radio communications system. This system encompasses low band (42 MHz) for station to station communication; high band (155 MHz) for mobile to station, station to mobile and mobile to mobile communication; 800 MHz trunking and conventional communication for New York City, and statewide portable tactical communication. Microwave multiplexed channel point to point links interconnect radio sites and control centers, along with approximately 350 telephone company leased lines.

3. The State Police have been studying the referenced proposed rulemaking. To those of us who operate radio systems in the vicinity of the New York City Metropolitan Area and along the United States border with Canada, there is a very evident need for additional channels that will permit **interference-free** communications for the daily use of law enforcement officers who must rely on radio communication for timely, accurate transfer of information and for their personal safety, as well as to provide for the safety of the general public.

4. We applaud the efforts of the Commission to develop a strategy whereby, from the finite radio spectrum, more communications channels may be made available. However, we wish to bring to the attention of the Commission certain issues, which we feel the present proposed rulemaking does not appear to address in a manner that would not cause significant adverse impact upon State Police radio communications.

BRIEF DESCRIPTION AND HISTORY OF THE NEW YORK STATE POLICE

5. The New York State Police, a Division of the Executive Department of the the State of New York, was established in April 17, 1917 as a full service police agency. Its jurisdiction encompasses the 47,377 square miles that make up the State of New York. In addition, its investigative surveillance activities frequently transcend the State's boundaries - typically less than 35 miles.

6. The original 237 Officers and Troopers operated out of 4 Troop Headquarters, patrolling in pairs on horseback to provide services to the rural areas of the State. Today, approximately 4,000 police personnel in the State Police are assigned to one of two principal branches, the Uniform Force or the Bureau of Criminal Investigation (BCI).

7. Uniform Troopers are responsible for patrolling rural and suburban areas, as well as interstate highways and state, county and local roads, to prevent and detect crime, enforce the law, investigate accidents and provide assistance in emergencies. Troopers are normally the first to respond to calls for service and may handle the entire case themselves; however, if their initial investigation indicates that a serious crime has been committed, they will turn the case over to the BCI. Uniform Force members also staff many specialized details such as aviation, SCUBA teams, hazardous materials response units, canine units, mobile response teams and commercial vehicle enforcement units.

8. The BCI is the State Police detective bureau. It's members are primarily concerned with the investigation of serious crimes. They also assist local police departments with complex investigations for which the local department may lack necessary expertise or resources. Specialists within the BCI concentrate on cases related to illegal drug traffic, violent crime, organized criminal enterprise, child abuse, serial crimes, and many others.

9. In addition to the direct law enforcement services provided by the Uniform Force and BCI, the New York State Police provides extensive support to its own officers as well as to local and county law enforcement agencies and the State's criminal justice system at large. Many of the almost 1,000 civilian employees of the Division are specialists who provide this support, which includes crime laboratory services, forensic science consultations, crime analysis, violent crime investigation assistance, communications and computer data bases such as the Homicide Assessment and Lead Tracking System, the Consumer Product Tampering Database, the Statewide Narcotics Apprehension Reporting Effort and the Statewide Narcotics Indexing Program.

10. The New York State Police also operates and maintains the New York Statewide Police Information Network (NYSPIN), which provides computerized information on motor vehicle registrations, vehicle operator licenses, wanted and missing persons, stolen property, and access to the federal National Crime Information Computer (NCIC) and other state law enforcement computer systems via the National Law Enforcement Telecommunications System (NLETS).

11. Today, the New York State Police is administratively divided into 11 Troops and Division Headquarters. The most recent - Troop NYC, covers the New York City area, primarily providing BCI services. The other Troops are made up of 2,3, or 4 Zones. Within each Zone are patrol posts based on community areas or line posts based on NYS Thruway and other interstate highway patrol segments. (The post is equivalent to a city policeman's "beat".)

12. In the early days, communication was by mail, and when available, by telephone. In 1931, teletype communication was introduced, interconnecting New York State with New Jersey and Pennsylvania. In 1933, State Police radio transmissions began from WPGC in Schenectady to 12 cars and 20 stations in the Troop G area (one-way broadcasting). In following years, this expanded with the assistance of other police department transmitters from Buffalo and Niagara Falls to Nassau County on Long Island. Just prior to World War II, two-way FM mobile radio communication was installed in Troop L - Long Island. In 1947, the New York State Police contracted with New York Telephone Company for a statewide FM two-way mobile radio communication network on State Police frequencies in the 42 MHz band. Following the "Carterfone" decision, New York Telephone Company sold its sites and equipment to General Electric who continued the service.

13. Starting in the 1960's and finally completed in 1982, mobile radio communication was converted to the 155 MHz band, with secondary, point to point, communication remaining in the 42 MHz band.

14. A new 800 MHz five (5) channel digital, high security, trunked radio system was placed in operation June 9, 1992 in New York City, and is now being expanded to meet the portable in-street radio communication coverage needs of Troop NYC - which includes a 35 mile radius about New York City for mobiles. Currently, the system is being expanded (Phase 1) to include a total of five (5) trunking repeater sites, and one (1) site for trunking system satellite receivers and National Mutual Aid repeaters (Calling and selectable Tactical channel repeaters), all interconnected by 6 GHz digital microwave in a loop protection configuration.

SLOW GROWTH IMPLEMENTATION

15. While most systems built under government program development processes should generally be capable of completion within five years, it is expected that some very large scale projects, such as a complete revision of technology for a statewide radio communications system, could take longer perhaps as long as ten or more years, due to budgeting constraints, and new site development delays caused by environmental/zoning issues. As explained in these comments, we believe the technology change that will be required to comply with these proposed rules will, in fact, require a complete replacement of our present high-band VHF communication systems. We recommend that in the event of such extraordinary circumstances, and upon submission of an appropriate showing of need by an

better overall spectral efficiency than centralized trunking by itself. Centralized trunking can be accomplished using FDMA as well as TDMA. Thus it would appear that TDMA could offer

blocks. However, a very significant number of existing systems are in operation on high-band VHF. Thus, it does not appear that 88.413(b)(5) is being effectively supported for high-band operation in the proposed channel plan.

21. The development of digital radio standards is underway through APCO Project 25. This, combined with the FCC's efforts to re-farm the spectrum, and the desire of our state government that we and other major communication system agencies re-bid our long term communication system contracts, causes us to consider the merits of a combined multi-agency statewide communications infrastructure. Traditionally, certain frequencies have been designated for state agencies, such as forestry/conservation, fire, highway, and police. These frequencies have encompassed low-band VHF and high-band VHF. Some agencies have developed systems in UHF. Certain State Plan inter-agency communication channels exist in low-band and high-band VHF, and now the NPSPAC national mutual aid channels are being included. Some regional interagency communication channels have developed in various bands, with no national standards. Except for low-band VHF and UHF MED channels, it is not readily apparent that provisions have been included in the proposed rules to ensure the continuity of those special requirements which have protected state-wide agencies' radio communication in high-band and UHF. It appears that such protections can only be achieved through an application filing process to obtain exclusive use overlay (EUO) treatment. While one could say that this covers the issue, it must be recognized that such a requirement will result in a very significant and time critical additional work load being imposed on governmental agencies with tight budgets, limited staff, and a large quantity of station and mobile licenses for which filings will be required. Additionally, this will create an equally significant burden upon the FCC, who must process all these applications. This can result in yet another tax burden upon the public.

22. As an alternative to statewide systems only having the EUO to fall back upon for the protection of their existing statewide systems and for the continuity of State and Regional mutual aid plans, it is recommended that, in addition to the State Plan restrictions shown for the low band channels, present statewide restrictions and intra/inter-system mutual aid restrictions continue to apply, such as FCC R&R 90.19(e)(11) - with respect to inter-system operations, 90.19(e)(12), 90.19(e)(14), 90.27(c)(5), and 90.27(c)(10) - with respect to intra-system and inter-system mutual assistance.

23. The channel bandwidths for all frequency bands normally intended for single channel voice modulation should be uniform according to type of emission. For a long time now we have been saddled with high-band VHF radios that were designed for 30 KHz spacings in a 15 KHz channel plan. The result has been adjacent channel receive interference. The distance at which interference became noticeable gave a good indication of the

quality (and cost) of the receiving radio. This problem developed gradually. The need for more channels 35 years ago caused a narrow-banding of radios back around 1960. Then, receiver bandwidth could be improved somewhat by minor replacement or realignment of an IF filter in many cases. (Today's typical radio design is more complicated, using distributed bandwidth determinants, which do not permit a simple fix.) However, the high-band VHF channel plan was basically setup for geographic offset of adjacent channels. When the spectrum became crowded again, the task of preventing interference between systems was left to frequency coordinators to control through geographic separation. As certain channels developed into State or Regional Plan common channels, and usage increased, conflicts developed over adjacent channel operations, and, as population and the resulting need for communication channels increased, spacings became closer and closer, which is where we are today. The technological change to digital radio will now force a major redesign of the radio receiver. The

for us to purchase at this time. The quantity of equipment that would have to be upgraded (if that even becomes a possibility), or (more likely) replaced, will require significant time and budget. Fiscal constraints, under which all government agencies have been attempting to maintain operations, cannot accept such an unplanned burden. Assuming that sufficient money can be found quickly, governmental budgeting cycles for a project of this magnitude require at least three years (and many times longer) from the date new criteria are established before costs can be estimated, budgets planned and approved, equipment procurement bidding procedures followed, and equipment ordered, received and installed.

26. The proposed FCC R&R 88.429, power and antenna height limits, will require that many of our sites will have to reduce power to as low as 5 watts ERP. It is not practical, or FCC Type Accepted, to operate our present 100 watt base station transmitters at less than 50 watts power output. Our typical antenna system has 6 dB gain, with a radiation center height above ground between 50 feet and 150 feet. We operate a statewide communications system, primarily in high-band VHF, with 91 sites. We strive for 95% reliability for mobile units. We use vehicular repeaters to permit use of portables in rural and mountainous areas. New York State has a wide variety of geography, best illustrated on a graphic display showing elevation bands in different colors. Our radio systems are primarily based on administrative Zones, with some systems on a Troop-wide basis. All receivers within a system are voted, only one transmitter is in operation at any one time within a system. The reduction in ERP required by this section will have a significant adverse impact on our ability to provide the required signal coverage reliability. The effect will be to develop significant localized holes within the coverage area. While the concept of reducing ERP to maintain an outer boundary of coverage is probably acceptable in an area with a flat terrain, the topography of New York State will cause a need for many additional transmitter sites in order to fill-in the coverage holes created by this concept. Having to produce this reduction by the effective date of these Rules will create a serious reduction in our ability to provide communications in support of field units and will result in a very significant safety issue to law enforcement personnel.

27. We will be faced with the need to develop more transmitter sites. Current zoning and environmental issues will thoroughly complicate and increase the time and cost of site development. Recent site development costs range from $200,000 to $550,000, not including radio and antenna system equipment and installation. Recent news media concentration on electromagnetic radiation issues are further complicating the process of tower siting, which used to be more in the realm of "visual" impact - an attribute with no specification for tolerance. Several tower projects undertaken by other entities have taken years to get through the Zoning Board approval phase

and some are still pending. Federal pre-emption of local Zoning for towers constructed for Public Safety and/or Emergency Medical Services communications systems, such as has been afforded the Amateur Radio Service, could greatly alleviate this problem.

28. Adding additional sites to our systems will require a significant redesign, since the present systems are based on a maximum of four sites per Zone system and ten sites per Troop-wide system. Considerable cost will be incurred to revise the control system, acquire property, and build additional transmitter sites, all of which is subject to the same governmental budgetary time table identified in paragraph 25, along with the site acquisition and Zoning approval delays. Additional leased lines or microwave systems will be required, the latter causing additional demands on the microwave portion of the radio spectrum. Statewide systems should be treated differently from smaller systems with regard to radio coverage and the ERP/HAAT limitations. Topography is a major factor in our decisions on base station siting.

29. We re-use some channels in every Troop and other channels, unique to a Troop, are re-used as many as three times across the State. However, some channels are not State Police restricted and are shared with other police agencies. In some cases this causes severe interference to our priority-scan mobile operations. It is readily apparent that small jurisdictions do not require wide area coverage, even though they like it for reasons of prisoner transport to a county jail, etc. These occasional needs could be better served by requiring the establishment of mutual aid channels in all frequency bands, where such limited transient operation could be satisfactorily handled on common channels appropriately designated to each of the three emergency services: Police, Fire, and EMS. In this manner, the cumbersome network control that seems to be complicating effective controlled use of the NPSPAC mutual aid channels would not be required .

INTERFERENCE FROM CANADIAN STATIONS

30. Unless the utilization of spectrum is coordinated between both Canada and the United States, a strong potential for interference will occur. One wide-band (relatively speaking) Canadian signal will adversely impact upon two or three of the proposed narrow-band US channels. We have experienced difficulty with international coordination when attempting to license existing communications channels of our system to new locations. Typically, these channels have been either State Police channels in accordance with FCC R&R 90.19(e)(12) or State Plan channels for statewide inter-agency communication. In the Canadian Impact Zone (Line A or the 100 KM Sharing Zone), achieving spectrum efficiency through time division multiple access on existing channels may be possible

with a good likelihood of satisfactory coordination through Canada.

SUMMARY

31. The Commission has started a major effort toward developing the needed additional land mobile communication channels. While the implementation will require change that is quite significant, it is necessary and must be done. We are confident that a timetable can be established that will permit